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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/596,979	09/26/2006	Rainer Mueller	A8450PCT-UT	3743

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EXAMINER
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SANDERSON, JOSEPH W

ART UNIT	PAPER NUMBER
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3644

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/596,979	<b>Applicant(s)</b> MUELLER ET AL.	
	<b>Examiner</b> Joseph W. Sanderson	<b>Art Unit</b> 3644	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 13 May 2011.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 17, 19, 21-23 and 26-33 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 17, 19, 21-23 and 26-33 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)         | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)         | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 13 May 2011 has been entered.

### ***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 17, 19, 21-23 and 26-33 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 17 recites carbon fibers in line 9, however it is unclear whether these fibers are the same as previously recited or additional fibers.

Claim 19 provides the fibers embedded in a ceramic, however this is an alternative embodiment to the metal. It is unclear how the fibers would be embedded in both the metal and ceramic simultaneously.

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Claim 33 is dependent on a canceled claim.

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 17, 19, 21-23, 26-28 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Westre et al. (US 6 114 050) in view of Suyama et al. (US 6 217 997) and Newell (US 5 407 727).

Regarding claims 17, 22 and 23:

Westre discloses an aircraft exterior skin comprising:

a composite material and a metallic material (as seen in Figs 1 and 4A; abstract), the composite material comprising carbon fibers embedded in a ceramic (as depicted), the metallic material being aluminum, titanium or alloys of each (col 5, lines 1-2), a resin coating the materials (the resin binding the fibers and/or adhering the foil), the skin having a sandwich design (as depicted), the layers being adhesively bonded.

Westre does not disclose the carbon fibers coated in a nitride or carbide bond and in a metal.

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Suyama teaches an aircraft structural component (as noted in the technical field section) wherein carbon fibers are coated in a silicon carbide mixture and ceramic fibers are embedded in a ceramic matrix (abstract; col 4, lines 36-47 indicates a list of fibers for use, rendering multiple types used together by stating that *at least one* of type may be used, with one form being SiC-coated fibers with a carbon core, thus rendering carbide-coated carbon fibers) to gain fracture toughness.

Further, Newell teaches fibers embedded in a metal as an alternative to embedding in ceramic (claim 1), the metal specifically being titanium (col 3, lines 33-38).

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to have modified Westre to use carbon fibers coated in a silicon carbide mixture and ceramic fibers embedded in metal as taught by Suyama and Newell to gain fracture toughness of the composite, to reduce electrical conductivity (carbon fibers being known electrical conductors), and as this is an art-recognized functionally equivalent means for providing an aircraft reinforced composite material.

Regarding claims 19, 21 and 26:

The limitations of claims 19, 21 and 26 further limit the embodiments with carbon and glass fibers, with the carbon fibers embedded in ceramic. However, Westre as modified renders the embodiment of carbon fibers with ceramic fibers embedded in metal, rendering these limitations optional.

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Regarding claims 27, 28 and 30:

The discussion above regarding claim 17 is relied upon.

Westre discloses the outer surface of the exterior skin exposed to weathering protected by joined a plate-like planking (28) to the outer surface comprised of a combination material of a non-metallic and metal (seen in Fig 3B), the planking being protective against burn through (due to the structure), adjusted to an outer contour of the exterior skin (to fit on the fuselage), and comprising aluminum or aluminum alloy (col 5, lines 1-2).

6. Claims 29, 31 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Westre et al. ('050) in view of Suyama et al. ('997) Newell ('727) as applied to claim 17 above, and further in view of Palm (US 6 861 156).

Regarding claim 29:

The discussion above regarding claim 28 is relied upon.

Westre discloses an aircraft planking using a combination material, but does not specifically disclose the material as a GLARE material.

Palm discloses as known in the art an aircraft using a GLARE material as a known weight saving material with high damage tolerance (col 1, lines 43-46).

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to have modified Westre to use GLARE as taught by Palm for the well-known predictable advantage of decreasing the weight of the aircraft while increasing the damage tolerance.

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Regarding claims 31 and 32:

The discussion above regarding claims 17 and 23 is relied upon.

Westre discloses carbon fiber composites, but does not disclose use of glass fiber composites.

Palm teaches glass fiber composites (specifically GLARE, as noted above).

It would have been an obvious matter of design choice to use glass fiber composites as well, since applicant has not disclosed that the additional use solves any stated problem or is for any particular purpose and it appears that the invention would perform equally as well with carbon fiber composites alone (as also noted by the alternative use within the disclosure).

7. Claims 29, 31 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Westre et al. ('050) in view of Suyama et al. ('997) Newell ('727) as applied to claim 17 above, and further in view of Heitkamp (US 5 460 864).

Westre as modified renders a layered metal/composite fuselage structure, with fibers embedded throughout, but does not render the exterior skin comprising silicate fiber material.

Heitkamp teaches an aircraft layered structure comprising a silicate fiber (asbestos fiber, col 3, lines 5-14) to serve as a fire barrier (col 3, lines 22-26).

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to have further modified Westre to use silicate fibers in the exterior skin as taught by Heitkamp to resist external fires or aerodynamic heating from damaging the interior.

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***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joseph W. Sanderson whose telephone number is (571)272-6337. The examiner can normally be reached on M 6:30 am - 11:30 am, T-F 6:30 am - 300 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy D. Collins can be reached on (571)272-6886. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Joseph W Sanderson/  
Examiner, Art Unit 3644